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ORIGINAL ARTICLES.

COMPLETE DISAPPEARANCE OF AN EYEBALL FOLLOWING A BIRTH INJURY.*

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Considerable has been written concerning birth injuries of the eye. A very complete article was published by Wolff in 1907-08. He made a statistical study of 112 cases and found that injuries to the cornea predominated. Of the 112 cases, 32 were corneal. The causative factor is usually the forceps applied sometimes unskilfully, at other times with skill but under the stress of circumstances. All varieties of injury may occur from simple swelling of the lids and conjunctival irritation to fracture of the bones of the orbit and avulsion of the globe. Quite a few instances of the latter have been reported in the literature. According to Wolff, who collected 19 cases of avulsion of the globe for the orbit, mentions among them one (Hoffmann), in which the separated eyeball slipped during the birth, into the fingers of the operator, and two (Maygrier and Zangarol) in which the eyeball was found after birth in the child's linen. Wolff noted also flattening, due to crushing of the globe, in three cases.

Gouging out or avulsion of the eye is noticed immediately after birth. The eye is found upon the cheek usually, hanging to the orbit by a few strands of tissue or fibers of an ocular muscle not completely severed. In a case reported by Donaldson one eye was dislocated on the cheek, but was at once replaced and three years later was normal and with good vision. Not all such instances are due to forceps; one occurred where no for-

*Read before the St. Louis Ophthalmological Society, Jan. 25, 1915.

ceps were used. The eye has been gouged out by the examining finger, the eye having been mistaken for the anus of a breech presentation (DeWecker, Bock). While, as stated before, forceps are the usual cause of birth injuries, this is not always the case. The orbital bones have been fractured in which a narrow pelvis was present in the mother—no instrumentation. Where forceps can be blamed there is, as a rule, a history of contracted pelvis, with the application of the forceps high up, that is before rotation has taken place. Consequently one blade is liable to press upon the cheek, eye or brow. It has been held, and not without some justification, that an unilateral high grade corneal astigmatism may be the result of a birth injury. In the last week I saw a patient with an opaque cornea, the result of a forceps birth injury, in which the cornea had an egg or rather pyriform shape with the small end downwards. In this case had the patient vision we should no doubt have found a high grade unilateral astigmatism. Wolff found that 93 of 108 eye injuries were in forceps deliveries and that virtually all birth injuries occurred in children born head first. The report of the present case is occasioned by the fact that I have found no instance of complete disappearance of an eye following a birth injury, recorded in the literature, although the search has not been exhaustive. Conversing with various ophthalmologists concerning the case led me to believe that it was rather unique in the history of birth injuries. A gross eye injury is something very apparent and would hardly escape the attention of a parent, especially an intelligent mother and a primipara.

Case Report.—W. C., 8 years of age, was brought by his mother to see about having an artificial eye fitted. With the exception of a shallow lower sulcus and a fulness of the lower lid the socket appeared exactly like that resulting from an ordinary enucleation. In fact its depth was probably somewhat greater. The mother was questioned as to when the eye was removed, and the surprising statement was made that it had never been removed. She was quite an intelligent and frank woman, and was positive in her statement that at no time had any operative procedure taken place. Questioned as to the presence of the eye at birth she was as emphatic in the affirmative. The eyeball had been injured at birth by the application of forceps and according to her understanding the eyeball had been ruptured. That it was posterior to the cornea is evident from her statement that the cornea and iris had the same appearance and color as the other eye.

Shrinkage of the eyeball took place gradually but rather rapidly, and the eye completely disappeared. At the apex of the orbit no stump or remnant of the globe could be seen. No opportunity was afforded for examination of the orbit under a general anæsthetic, but palpation as deep as possible under cocain yielded no evidence of an eyeball. Owing to the shallowness of the lower sulcus the fitting of an artificial eye was difficult and postponed. The patient then disappeared from view, and when next seen some months later had trachoma in full bloom.

In the absence of such an intelligent and observing mother, as this child had and with no history of operative procedure, the idea of an anophthalmia might arise in the observer's mind. Against this is the fact that anophthalmia is quite rare, it is bilateral in 70 per cent. of cases, there are usually but not always concommitant bodily defects. The orbital cavity is small and conical, and at its apex is a soft reddish mass representing the rudimentary eyeball. The lids are narrowed, short and a condition of microblepharon or partial ankyloblepharon is present. The cilia are scanty and badly formed, and an entropion may be present. Where the condition is unilateral the other eye may be perfectly normal. In the case reported to-night the lids, lashes and orbit seemed perfectly normal, except for the shallowness of the lower sulcus and the fulness of the lower lid above noted. It has been held that the presence of the eyeball is probably necessary for the proper development of the orbit and lids. While that may in a measure be true, yet in this patient the absence of the globe had made no decided difference in the orbital development and none in the lids. Where an eye is absent at birth, the orbit and lids small and deformed, it is possible that all the conditions present are the result of some defect in development. All are the result of the same cause.

INJURY OF EYEBALL WITH GREAT LOSS OF VITREUS.*

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Injuries of the sclera are commonplace and in themselves do not justify their being reported. The present case was of interest because of the happy result succeeding upon such a severe trauma, and as furthermore showing that conservative measures may be crowned with success in an injured eye which at first inspection appears doomed to destruction.

Any penetrating wound of the eyeball is to be looked upon as a serious matter. The more vascular a structure the quicker as a rule is repair, the greater the local quantity of antibody content and consequently the less danger of infection. In avascular structures healing is not so rapid, repair is delayed, resistance is minimal and infection very apt to supervene. Consequently the outlook for wounds of the vitreus made with non-sterile objects is bad. Where infection is escaped and hæmorrhage into the vitreus has not blotted out vision there is always the secondary results to be feared, viz., formation of vitreus bands, shrinkage of these and detachment of the retina. As a result of contraction of the scar tissue in the choroid and retina a subsequent detachment is to be expected; therefore, our prognosis should take this into consideration. What may be looked upon as a very happy immediate result may prove in the future to be a most disastrous one. Hæmorrhage into the vitreous is an almost constant accompaniment of these penetrating wounds, and is a frequent source of new formed vitreus bands with resulting retinal detachment. In cases in which detachment does not occur it is safe to assume that the incarceration of the edges of the retina and choroid in the scar tissue of the scleral wound has acted as a barrier to detachment. How much vitreus may be lost and vision retained is still undetermined. Würdemann states that if over one-fifth is lost no vision may be expected.

A. S. and L. D. Green, in *Ophthalmology,* January, 1915, quote Lowenstein and Samuels, working experimentally in Elschnig's clinic, to the effect that these observers found that one-third of the entire vitreus content can be withdrawn from an eye without deleterious results.

In the case reported to-night nothing definite could be de-

*Read before the St. Louis Ophthalmological Society, Jan. 25, 1915.

termined as the proportion lost, but it certainly seemed in excess of a fifth. It is uncertain if the vitreus as vitreus regenerates. Its volume is restored but it is thought to be accomplished by the acquisition of aqueous, consequently we would expect the consistency of the vitreus to be more fluid.

According to Würdemann most penetrating and perforating wounds of the sclera likewise involve the ciliary body and open both the vitreus and anterior chamber, the iris prolapsing and becoming impacted in the wound. The loss or impaction of portions of structures such as the retina, uvea or lens complicates healing and repair and vitiates very much a favorable prognosis. Healing of scleral wounds is brought about by the deposit of new connective tissue and this is facilitated and the amount of connective tissue minimized if the edges are evenly and closely approximated. The statement that wounds posterior to the corneo-scleral margin will probably remain open was not verified in my case; this unfortunate circumstance being doubtlessly obviated by the adhesion of a lacerated flap of conjunctiva to the edges of the wound, and also to the fact that the clean cut and its horizontal direction tended to produce a minimum of trauma to the scleral fibers, causing a splitting, as it were, and preventing a gaping of the wound. As the lower lid at the junction of the inner and middle third was cut and the wound in the sclera was almost perfectly horizontal, the patient was evidently looking upwards and to the left at the moment of the accident.

One is in doubt sometimes as to just what to do with these cases. It would seem that suturing the scleral wound and drawing over it a conjunctival flap would be good surgery and a fulfillment of the indications. All ophthalmologists are not a unit on treatment. All recommend suture of the wound when not infected. If a large wound needs closing at any time it is needed immediately, and how can one then say whether the wound is infected or not. Fage and Czermak (quoted by Würdemann—Injuries of the Eye) give the advantages and contraindications, respectively, of scleral suture.

Advantages.—1. It protects the interior of the eye from infection. 2. It hinders the further loss of vitreus. 3. It prevents the formation of a fistula, cystoid cicatrix and staphyloma. 4. It causes the formation of a much more regular and flat cicatrix, and the probability of secondary retinal detachment is less. 5. It shortens the healing period.

Contraindications.—1. In severe and especially deeply pene-

trating wounds with extensive loss of vitreus, threatening entire loss of the intra-ocular contents, extensive bleeding into the vitreus cavity, and when the eye is so severely damaged that its removal is immediately indicated. 2. When a foreign body remains which cannot be removed from the globe. 3. When appearances of course point to inflammation of the globe.

Scleral suture may be made with chromicized catgut or other absorbable material. A mattress suture may be used or a double armed suture inserted first through one edge with one needle and then through the other edge with the second and then tied. The conjunctiva is then slid over the line of scleral sutures and united with silk.

The case history is as follows. P. N., aged 11 years, while playing with a piece of tin, obtained from a tin can, and attached to a string, was struck in the left eye September 21, 1914. He had been referred to Dr. John Green, Jr., who was out of the city, the patient coming then into my hands. The tin cut the inner third of the lower lid, penetrating the sclera at a point about 2 mm. to the nasal side of the limbus and extending horizontally backwards for a distance of 12 mm. The anterior chamber contained blood disposed in a ring shape around the base of the iris. The anterior chamber was very deep. The pupillary border of the iris was displaced backwards, the iris appearing like a funnel. O.D. V=20/15; O.S. V= direction of hand movements at 2 feet. The conjunctiva was cut and torn and adherent to the scleral cut. It appeared as if a great deal of vitreus had been lost. The eyeball appeared much diminished in size and to the finger felt mushy. The patient was seen 25 hours after the injury, having made a 100 mile trip by train. The eye was cleansed with sol. bichlor. 1/5000 and ol. atropia 1/120 instilled; collodion dressing ℞. Tab. calomel and soda, aa. gr. ¼, and ℞. Tab. formin, aa. gr. v given. September 23, 1914, patient sent to hospital with the intention of stitching the wound together and drawing over a conjunctival flap. At the last minute the parents refused to have it done. They demanded a guarantee that infection and inflammation would not occur and that sight would be restored. This was refused and they were informed that in spite of everything that might be done, whether the wound was sutured or not, that infection might occur and that even if the eye healed kindly that sympathetic ophthalmia might later supervene. No promise or assurance was given that the eye would be saved. They were told that the

immediate necessity was a suture of the sclera, and that time only would determine the ultimate outcome of the eye. September 24, 1914.—Eye reddened, no pain, some chemosis; appears that more vitreous had escaped subconjunctivally. Infection and an impending panophthalmitis was feared. Treatment continued. September 25.—Eye looked better, chemosis gone. Left hospital against advice. September 26.—O.S. V=fingers at two-thirds metre. With the ophthalmoscope details were made out up and out, whereas a large blood clot was seen down and in. Treatment was continued as before, the wound healed nicely and flattened down. No pain at any time. The vitreus cleared, all the blood clot disappeared. When discharged November 12th, O. S. V=20/75; O.D. V=20/12. At no time did the right eye show any symptoms of irritation. O.D. P.P.=16 D. acc. The fundus examination showed a grayish streak passing inwards and forwards, one-sixth disc diameter in width, situated slightly below the median horizontal plane. This streak started from near the disc and was lost to view anteriorly. Retinal vessels were seen crossing this area. This streak represented evidently an extension of the original retino-choroidal tear produced by the injury. Virtually the only local treatment relied upon from September 26 other than cleansing measures, was xeroform in oil of a 20 per cent. strength. When patient was last seen, January 5th, 1915, conditions were unchanged, O.D. V=20/12, O.S. V=20/75. Tension taken with a Schiötz tonometer=15 mg. Hg. in the left eye.

THE CHEMOTHERAPY OF PNEUMOCOCCUS INFECTION.*

By Dr. J. Morgenroth.

(From the bacteriologic department of the pathologic institute of the Berlin University.)

(The following is that part of a paper read before the Berlin Medical Society by Morgenroth which is particularly important and of great interest to oculists.)

Ulcus serpens. Basis for optochin therapy.—Although we must designate a tissue sterilization by way of the blood in general as one of the most difficult tasks of experimental chemotherapy, the problem is of the simplest when we aim at the local disinfection of a tissue area which is easily accessible and limited.

For the chemotherapy of pneumococcus infection the task was just such an one and it presented the possibility to study the new therapy in an eminently important affection in man, the ulcus serpens of the cornea. The great social importance of ulcus serpens, which is of especial interest on account of the accident insurance, is well known. The excellent articles by Cramer and Wagenmann contain all the essentials on this point. I, therefore, mention only that one-half to one-third of all accidental affections in agricultural employment are due to ulcus serpens.

An experimental study on animals of this question, met with serious obstacles, since thus far it has been impossible to produce typical pneumococcus ulcers in animals' corneæ. Yet the experiment was of value as a preliminary study. It could under exact experimental conditions answer the following questions:

1. Does optochin externally applied penetrate into the corneal tissue?

2. Is it possible to kill pneumococci which develop in the corneal tissue and without damaging the cornea?

The following up of the penetration into the corneal tissue of a soluble salt of optochin in a watery or of the base in an oily solution is made possible by an especially favorable effect, its anæsthetizing action, which this alkaloid shares with many other quinine alkaloids. (Thus the isoamylhydrocuprein is a combination which with minimal poison qualities is far superior to cocain in strength and durability of effect.)

When a 1 per cent. solution of optochin. hydrochlor. acts on

*Berliner Klin. Wochenschr., November 23 and 30, 1914.

a rabbit's eye for one minute, a complete anæsthesia of the whole cornea results, which is at its height in from 2 to 8 minutes after the completed action of the solution and begins to slowly decrease usually after one hour. This proves with certainty that a 1 per cent. solution of the salt penetrates in a few minutes the corneal epithelium and the corneal tissue and reaches all the terminals of the sensory nerves.

Optochin. hydrochlor. in solutions of moderate concentration rapidly diffuses in the cornea. Here the main condition for a specific disinfecting action within the cornea is given. The base in oily solution acts in the same manner.

Solutions containing up to 2.5 per cent., when acting for one minute on a rabbit's cornea, caused no other disturbance. Subconjunctival injections of 0.5 ccm. of a 0.5 per cent. solution are borne by the rabbit's eye without any damage, even if repeated after 24 hours. Here, too, as was to be expected, the diffusion into the cornea produces complete anæsthesia.

The second question was answered by experiments made by Ginsberg and Kaufmann in my laboratory, in this way: virulent pneucococci brought between the lamellæ of the cornea are killed by optochin without damage to the cornea. Especially the subconjunctival injection of a 0.5 per cent. solution of the optochin salt was strongly effective.

Practical effects of optochin therapy.—About two years passed between our first recommendation to use optochin in the treatment of pneumococcus ulcers and the first publications of successful employment by Goldschmidt, Schur and Leber. However, after the interest of ophthalmologists was once aroused, it was soon used widely, and if we are not mistaken, it will soon dominate the therapy of this affection which has hitherto been very unsatisfactory. In the opinion of almost all ophthalmologists Roemer's serum therapy has not materially improved the treatment of ulcus serpens; it cannot be reckoned with for the prophylaxis of ulcus serpens and the pneumococcus infection of the eye in which the simple local application of optochin is in place, since aside from the unproven action the high price of the serum forbids its use. At a last resort hitherto the galvanocauter remained, the effect of which was not certain and caused destruction of tissue and scar formation. At the Tuebingen Eye Clinic (Prof von Schleich) the systematic use of optochin has led to a change in therapy which is best characterized by the remark of Schur: "Since the employment of æthylhydrocuprein

the galvanocauter was no longer used in our clinic in cases of ulcus serpens (pneumococcus) and will henceforth probably remain unused."

At the meeting of the Heidelberg Ophthalmological Society in 1913, Leber[1] reported his results. He employed a 1 per cent. watery solution of the base. The solutions were dropped into the conjunctival sac or brought directly on the ulcus by means of a small pledget of cotton. In about three-fourths of the cases after a rapid cleansing of the ulcus a quick and lasting cure resulted; in others the healing proceeded more slowly. In a few cases, after at first a standstill, an exacerbation with a new infiltration occurred, which was less influenced by the treatment. Leber thinks the tissues develop a certain fastness against the remedy.

The first exhaustive publication was made by Goldschmidt[2] who, in the discussion following Leber's paper, had already reported on his successes (from the Leipzig University Eye Clinic).

He reported with very instructive illustrations on 31 cases of ulcus serpens in which a 1 per cent. watery solution of optochin. hydrochlor. was instilled every hour; the cornea was perfectly covered by the solution, which remained in the conjunctival sac for a half minute. This treatment was carried on until the corneal ulcus was perfectly clean and the infiltration gone. Stronger solutions used in the same manner proved not indifferent, weaker ones were without effect. Subconjunctival injection of 0.5 ccm. of a 1 per cent. solution produced severe chemosis.

The first instillation is pretty painful; soon, however, a grateful anæsthesia develops, which is kept continuous by the treatment, even when this is interrupted during the night.

Goldschmidt concludes from his observations that optochin assuredly possesses a far-reaching curative effect in pneumococcus infection of the eye.

At the same time with Goldschmidt's paper a communication by Schur[3] appeared who, at the instance of Prof. von Schleich, instituted therapeutic studies at the Tuebingen Eye Clinic.

Schur treated in all 14, mostly very severe cases of ulcus serpens. He did not make instillation but pressed a pledget of cotton soaked with a 2 per cent. solution of optochin. hydrochlor. directly on the ulcer, taking care that the neighborhood remained free. This touching was continued until a slight opacity became visible in the neighborhood of the ulcer. He collects his judgment concerning the "frequently astonishing" results in the

statement that this remedy "has a decidedly specific action on the pneumococcus ulcer of the cornea without causing any damaging side-effects." The scars appear much thinner than with the former modes of treatment.

The first communications of Goldschmidt[4] and Schur[5] were followed by others about a year later.

Schur has developed the method at first used with the best success. He rightly insists on making sure by a Gram stained smear from the progressing part of the ulcer that there is a pneumococcus ulcer. According to the severity of the case he leaves the cotton pledget with the 2 per cent. solution under slight pressure on the ulcer for one or two minutes, sometimes slightly longer. "Aside from this, according to the severity of the case, instillations of a 2 per cent. solution are made into the conjunctival sac every hour or every two hours, and this is continued with reduced frequency until the ulcer is perfectly clean." Contrary to Goldschmidt's observation, according to Schur, even a 2 per cent. solution repeatedly applied is borne without damage. (Schur, and recently Schwartzkopff, calls attention to the fact that watery solutions of optochin. hydrochlor. soon lose their action and after 2 or 3 weeks have no more effect. Fresh solutions are, therefore, to be used. With sterile solutions sealed in Jena glass ampules, I have not been able to find a weakening of the specific action in the test tube even after months.)

Schur believes that instillations alone will suffice only in mild cases, but lays emphasis on energetic treatment at the beginning in order to avoid the development of a fastness, an opinion to which I cannot but agree from theoretical reasons.

Based on his considerably larger experience he designates the action as directly astounding. The day after the first treatment the progress has ceased, often there is already a retrogression. On the fifth or sixth day the ulcer is clean, as a rule. If the retrogression is slow or if there is a sign of progress, the ulcer is again touched with the cotton pledget. He lays emphasis on the anæsthesia of the cornea which develops in a short time. In the discussion following Schur's paper read before the Wuertemberg oculists his observations were confirmed by all the speakers.[6]

He justly insists on the necessity of an early treatment. "Here the general practitioner can be of great help, who is usually at first called on by the patient and who may at once give the first energetic treatment with optochin." The further treatment is given by the specialist.

In this I see one of the most important steps forward in this new treatment. Neglected cases of ulcus serpens will become much rarer, when the first physician who sees the case is in position to apply, so to speak, "an emergency bandage" by the immediate application of optochin treatment. Schur's method will prove appropriate—as, no less, Goldschmidt's treatment with an ointment.

Goldschmidt, too, says "that in order to avoid a fastness toward the remedy, the treatments from the beginning must be as intense, and, as to time, as near together as possible." The following ointment he considers the most appropriate: optochin. hydrochlor. 0.1, atrop. sulf. 0.2, amyl trit. 2.0, vasel. ad. 10.00 This can be used for four days only. (This is not generally accepted.) The ointment is brought into the conjunctival sac 5 or 6 times at regular intervals and slightly massaged. Then a plaster bandage is applied. Since the first application of this ointment is often very painful, Goldschmidt advises cocain anæsthesia, later on the optochin anæsthesia will take its place. The slight chemosis, sometimes observed, is of no importance. This treatment is continued till the ulcer is clean, which takes usually from three to four days. Even ambulatory treatment is possible. Cases with deep corneal infiltration demand a longer treatment.

Goldschmidt attaches much importance to the fact, that suppuration of the lacrimal sac which with the former methods of treatment acted so unfavorably on the course of ulcus serpens, does not exert such a bad influence with optochin treatment, evidently the pneumococci getting into the lacrimal sac are killed.

As is to be expected, a pneumococcus catarrhal conjunctivitis is influenced as favorably as the acute dakryocystitis. In chronic dakryocystitis the anatomical conditions often cause difficulties which have as yet not been overcome, although recently Gradle reported some favorable results.

With Schur, Kraupa and others Goldschmidt lays stress on the value of optochin as prophylactic before operations since here pneumococci are by far the most frequent cause of infection. At the Leipzig clinic every pneumococci bearing patient is treated before an operation with a 1 per cent. optochin ointment to completely sterilize the conjunctival sac, which usually requires three to four applications within 12 hours.

Goldschmidt concludes: "Optochinum hydrochloricum is a chemotherapeutic agent which in an absolutely specific manner

kills the pneumococcus, the incitor of ulcus serpens and of other important eye affections. This specific action is so pronounced that if this therapy fails we must think of another incitor of the ulcus or of a mixed infection. In some very rare cases there seems to be an innate poison fastness of the particular pneumococcus strain. I have seen only two such cases in about 100.

As a chemotherapeutic agent the optochin therapy possesses still some further advantages:

"Only the pneumococci are destroyed, the tissues are not lastingly damaged when it is used in the concentrations above referred to. Therefore, no defect is caused in addition to that present at the beginning of the treatment, in consequence the resulting scar is as small as at all possible. Since the scar is, moreover, less opaque, vision is mostly relatively good. Finally, the application is simple and the cost of the treatment small."

Single refractory cases to which Goldschmidt draws attention, have, also, been reported by other authors. Uhthoff[7] at a recent discussion spoke of resisting cases which were treated with a 1 per cent. solution. His material was not large and a part of the cases were not recent. His opinion of the remedy is "favorable, but less enthusiastic than that of other authors."

The excellent results of Goldschmidt and Schur were affirmed by Cords in a short review from the Bonn University Eye Clinic. Kuhnt[8] describes the action of a 1 per cent. solution as directly astonishing. In his opinion simple instillation is not sufficient, one must be careful to touch the diseased area for one-half to one minute with the fluid. "This marks an enormous progress, since, when there is no lacrimal sac disease, the general practitioner may successfully treat an ulcus serpens."

Holth[9] at Christiania confirms the favorable opnion; Wiener,[10] of New York, and Darier,[11] of Paris, also, make similar statements.

Kraupa,[12] at the Prag University Eye Clinic, uses optochin to disinfect the conjunctival sac before operations. He washes the conjunctival sac at one-half hourly intervals with a 0.5 per cent. solution; after 24 hours, and even for some days, no more pneumococci can be found.

A careful communication by Maggi,[13] from the Pisa University Eye Clinic, gives the same favorable results as those of Goldschmidt and Schur. This is the same with reports of Kandiba and Natanson,[14] from the bacteriological institute of the Medical Society of Charkow. Gradle[15] reported favorable results to the German Medical Society of Chicago.

From the University Eye Clinic of Bukarest (Prof. Stanculeanu), where the remedy has been used extensively, there is a short and favorable report by Dimitriu.[16]

In an exhaustive report from the Erlangen University Eye Clinic Kuemmell[17] recommends the optochin treatment. With his method, very nearly like that of Schur, the results were excellent. He first touches the ulcer with a cotton pledget soaked with a 2 per cent. solution for about one-half minute. Then a 1 per cent. solution is instilled every hour, and care is taken that the remedy remains for some time in contact with the ulcer. This is continued until the ulcer is completely cleansed. If the effect is not rapid enough the ulcer can again be touched with the 2 per cent. solution. Kuemmell, too, observed one case out of 25 in which the ulcer first receded, but then remained uninfluenced by the treatment for some weeks; even touching with a 5 per cent. solution gave no result.

Kuemmell especially points out that the burden of the agricultural insurance unions for eye accidents, since these are mostly due to ulcus serpens, will become less on account of the small opacities remaining after optochin treatment. According to his observations the working ability in contrast to former results is but little diminished, which is an important economic factor. He concludes his report: "After all this we can, without exposing ourselves to the accusation of unwarranted optimism, designate æthylhydrocuprein as the most valuable weapon against ulcus serpens."

Finally Schwartzkopff[18] made a report to the Medical Society of this city on the favorable results observed in 27 cases at the Berlin University Eye Clinic. Here the ointment of Goldschmidt has been employed recently, however, for no longer than three days, since after that no more pneumococci can be found, and if used longer a caustic effect might be produced on the bare parenchyma of the cornea. "We can affirm that we are able with this remedy to bring every ulcus serpens, which has not yet progressed too far, to a standstill and to a satisfactory healing." In the discussion Muehsam, Paderstein, Fehr and Wertheim praised the remedy and in concluding Krueckmann pointed to the unanimity of the favorable results.

It is, therefore, no unwarranted audacity when I confess to the conviction that even the few refractory cases will still be overcome by the therapeutic art of the oculists. The view point of chemoflexion must, here too, form the theoretical base; my

former opinion that the culturing and examination of the apparently resistent pneumococcus strains could furnish an explanation, is probably not wholly correct in view of the very futile character of this occurrence. (In refractory cases we must [A. Schur] think of a secondary infection, especially with staphylococcus.)

In all cases the principal must be, as the ophthalmologists after their experience insist, to act quickly and firmly and then continuously.

After Peterka's[19] experiences, who with best success made use of the anæsthetic action of optochin in treating blepharospasmus after eczematous conjunctivitis in children, even 5 per cent. solutions may be instilled at larger intervals without damage to the tissues. It seems, from this, that the limits of its usefulness have as yet not been reached. It should, furthermore, be of great value not to interrupt the continuity of the treatment during the night.

When the specific therapy and prophylaxis of pneumococcus infection in ophthalmology will have been fully developed—and this moment seems to me to be very near—one of the most dreaded and severest infections of the eye will have lost its terrors.

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A SYNDROME OF SYPHILITIC ORIGIN SIMULATING THROMBOPHLEBITIS OF THE SINUSES.*

By E. Haas.

The observation which I want to relate is, as far as I know, unique. I thought it useful to report it as a new example of what may happen by an accidental localization (we are in a position to explain the accident with anatomical conditions which determine the seat of syphilitic lesions), and as a case particularly difficult as to diagnosis.

Mrs. X., 25 years old, in 1912 had had violent pains in the scapulo-humeral region, intense evening headaches and a roseate eruption on the trunk and limbs. Benzoate of mercury had brought about an improvement in one week. At that time two Wassermanns were positive. The primary lesion had been absolutely unknown. She was treated pretty regularly till July, 1913. I saw her the first time on July 16th, 1913, on account of a slight swelling on the lid margins with a very slight blepharitis, which yielded in a few days to local treatment. I found, also, a mixed astigmatism of 3 D. in the left eye, with V=0.5, with the correction and the same condition in the right eye. Such degrees of visual acuity, it is well known, are not exceptional in such forms of ametropia. Aside from a very small staphyloma of the papilla, the fundi were normal. After July 25th I did not see this patient again until September 22d, when I returned from my vacation. Her physician came in haste to see me and told me the following: A few weeks previously she had shown signs of an appendicitis and had been operated on on August 29th. The healing went on normally without fever. Yet she vomited persistently for four days after the operation. She was, also, suffering from headache and a sharp pain in the left intra-orbital region. These pains, at first slight, gradually increased and were very intense by September 2d, when she got up the first time. Aspirin, pyramidon, antipyrin did no good. She drew attention to the left infraorbital foramen which she pointed out and said she suffered spontaneously at this spot and in the depth corresponding to it. On September 6th a subcutaneous injection of morphin produced vomiting which rendered all alimentation impossible. The left eye is slightly protruding and pressure on the eyeball is painful. In a few days the exophthalmus reached its height, the eye was absolutely immoveable in the orbit. The pain became atrocious

*La Clinique ophthalmologique, August, 1914.

and it demanded two injections of morphin daily. The vomiting continued and was bilious. A lumbar puncture and a Wassermann were negative. On September 16th a certain degree of exophthalmus was apparent on the right side following an infra-orbital pain similar to the one on the left side. Thirty centigrammes of neosalvarsan were injected intravenously. Another lumbar puncture and another Wassermann on September 17th were both negative. Two consulting scientists, one a general physician and the other an oculist, give respectively the opinion of a cerebral tumor and of a thrombophlebitis of the sinuses.

Since September 19th the exophthalmus of the right eye is complete and her general condition has become most critical. I saw her, then, on September 22d, 25 days after the first painful symptoms, 16 days after the beginning of the left exophthalmus and 8 days after the beginning of the right exophthalmus. This report having been given by her physician, I proceeded with my examination.

Mrs. X., was considerably reduced in flesh, lying in bed without moving, even almost without speaking. Her intellectual faculties seemed to be intact in their quality but weakened. She does not answer because she is too weak.

Her temperature taken since the beginning has varied between 37 degrees and 37.5 degrees. The pulse is very good, not rapid nor irregular. Both eyes show an equally enormous exophthalmus. The eyeballs protruding straight ahead, are almost immovable in all directions. The lids are very œdematous, especially the lower ones. The bulbar conjunctiva forms a chemotic, gelatinous mass, of a yellowish rose color, which protrudes between the lids and prevents their closure. There is a small amount of mucoid secretion without any special character.

Vision is very much reduced, the patient hardly recognizes faces. Light increases her pains and she demands a dark room continuously. The light reflex of the pupil is present. An ophthalmoscopic examination is practically impossible.

Impressed by the extraordinary likeness of some of these symptoms with those of a thrombophlebitis of the sinuses, I did nevertheless not think it sufficient to be satisfied with this diagnosis. Since all periorbital infection was wanting the phlebitis would have had to be brought into connection with the appendicitis. Yet, we know that such a post-operative phlebitis is very rarely located in the sinuses of the skull, especially in the cavernous sinus. Neither did I observe any indurated chords around the

orbit which often mark a backwards invasion of the superficial veins from the infected cavernous sinus and the ophthalmic vein. The absence of any fever, furthermore, seems to me in our present clinical knowledge absolutely incompatible with the diagnosis of a sinus phlebitis, with which, on the contrary, we always find great pyæmic fluctuations or at least a continued fever.

Mrs. X. showed a profoundly weak aspect, even cachectic, but in no way that intellectual aberration of patients suffering from thrombophlebitis. These have not even the time to become cachectic; coma overtakes them long before their reserve forces are exhausted.

Convinced by elimination that I could have to deal only with a syndrom of syphilitic origin, I gave her at once an intravenous injection of 1 centigramme of cyanide of mercury. The next day I gave her a second injection. The following day, September 24th, I noticed a slight mobility of the eyeballs. A third injection caused some mercurial stomatitis. On September 25th and 26th very rapid improvement in her general condition took place. On September 27th forty-two centigrammes of neosalvarsan were injected intravenously. On October 4th the left eye showed only a slight degree of exophthalmus, the movements of the eyeball are restored, the chemosis has almost disappeared. I injected one centigramme of cyanide intravenously, as also on the 8th, 18th and 20th. Since the 13th, however, the exophthalmus of both eyes had disappeared, the movements were normal, the pain had diminished and finally disappeared. The patient can read and begins to feed herself. The vomiting had disappeared as soon as no more morphin was needed.

On the 20th, the ophthalmoscope showed a perfectly normal fundus in either eye. On October 30th there is still a certain thickness of the conjunctiva in the lower cul-de-sac and a certain redness of the bulbar conjunctiva, especially its lower part.

I did not see her again until December 4th. Her physician treated her with a certain timidity by intramuscular injections of the biniodide of mercury. On December 4th she came to see me. Her visual acuity has remained at 0.5 in each eye with correction, that is, the same as before the symptoms of compression had appeared. The fundi are still normal. However, the patient complains of a diplopia which the examination shows to be due to a paralysis of the inferior oblique muscle of the right eye. The image of the right eye is higher than and to the right

of the image of the left eye, and the diplopia increases when looking upwards and to the right. By right frightened by this symptom, the patient consented to submit with the approval of her physician to the treatment which I applied myself, namely, an intravenous injection of one centigramme of cyanide of mercury four times per week. In spite of this intense treatment pursued all through December and January the diplopia was but very little improved. On January 20th the patient complained of an infraorbital pain just like the one which had preceded the exophthalmus. On February 2d, on account of the persisting pain and the obvious inefficiency of the cyanide of mercury, I decided to use neosalvarsan systematically and progressively. Her general condition was excellent, her liver and kidneys in perfect function. The first day I gave her an injection of thirty centigrammes and then from week to week nine further injections, four of forty-five, one of sixty and four of sixty-five centigrammes. The patient was every time kept in bed for a day and dieted before and after the operation. In the middle of April I stopped this treatment. From the first injection on the pain had disappeared. The diplopia resisted longer, till the tenth injection, and even then to a small degree, then disappeared altogether, although since then no further treatment has been given.

When seen lately the patient's eyes were exactly the same physically and functionally as they had been before this series of events. There is still some redness in the lower fornices, the remainder of bloodvessels newly formed during the period of exophthalmus.

The paralysis of the right inferior oblique has to some degree drawn our attention away from that remarkable period of the disease, the period of exophthalmus from September 6th to October 13th, 1913.

Although at the time of activity the diagnosis presented great difficulties, the final interpretation of the sum of facts seems to me to be simple and complete.

The diagnosis of a cerebral tumor is definitively abolished by the evolution of the symptoms.

That of a thrombophlebitis of the sinuses which on account of the absence of a collateral periorbital circulation and especially of fever I had eliminated, is also disproven by the final evolution. First, the thrombosis of the ophthalmic veins and of the cavernous sinus cause very much more frequently inflammations in the neighborhood, than a general infection the cause of

which with difficulty might have been found in the operation of appendicitis, which our patient had never undergone. It is furthermore not characteristic of the microbes in thrombophlebitis to permit an evolution without fever, and it was especially the absence of any fever which prompted me in my diagnosis. Finally, the very course of events, the symptoms unchanged for 16 days, when I saw the patient, the same conditions persisting without aggravation for a week, and the progressive cure—all these are contrary to the clinical facts which we know to accompany a thrombophlebitis. If some authors have reported some cases of cure, the observations are at least doubtful.

The syphilitic nature of the symptoms observed after the patient's previous history, confirmed by one of these partial paralses which are almost always of syphilitic origin, seems to me to be absolutely demonstrated by what I may call the therapeutic reaction. The diminution of the symptoms which by one injection of 30 centigrammes of neosalvarsan, made at once, was not produced, as was not exceptional, did not fail to begin as soon as as systematic and sufficient treatment was put into action.

I asked myself with what kind of syphilitic affection and in what anatomical localization I had to deal. The essential symptoms, as exophthalmus, serous transudation, chemosis, dilatation of the conjunctival veins, it seems, must be referred to a stoppage or an insufficiency of the circulation in the ophthalmic vein and the cavernous sinus. A periostitis in the neighborhood seems to me to be more probable than a syphilitic endophlebitis. Although a periostitis, or to be more exact, a subperiosteal gumma, is counted as a tertiary affection, we know that this distinction has no absolute value and the so-called tertiary affections may appear within a few months after the primary lesion; the more is this likely, more than a year later. There is therefore nothing against assuming a subperiosteal gumma. How can we, finally, determine the probable situation of this gumma.

Let us imagine on the left side of the sella turcica, that is on the left side of the body of the sphenoid bone, a subperiosteal gumma growing at first slowly in surface and later more strongly in thickness. Such a gumma at first punctiform grows along the bony surface, reaches the inferior root of the small sphenoidal wing and the upper border of the sphenoidal fissure. Now come the painful prodromal symptoms, appear on the level of the external frontal branch, the terminal branch of the nerve which is distributed in the integuments after it has passed through the in-

fraorbital foramen. Along the upper border of the sphenoidal fissure, but at its lower portion, in the ring of Zinn, there is also the lower branch of the common occulomotor nerve a part of which goes to the inferior oblique. These progressive lesions along the border of the small sphenoidal wing explain not only the prodromal symptoms, but also, if we assume that the inferior branch of the third nerve remained uncured and had an isolated relapse, the consecutive paralysis of the inferior oblique muscle.

A week passed without the rapid growth of the subperiosteal gumma. Then it grew in thickness. At the same time when it penetrated into the bony tissue of the sphenoidal bone, the superiosteal infiltration increased and tended to assume a larger and larger volume. The sinus cavernosus lying closely to this side of the bone, held by the dura mater to the base of the skull, compressed, the circulation became labored or impossible and the exophthalmus, the serous effusion, chemosis appeared. Thus the signs of choked disc are explained. The internal carotid artery, held in the cavernous sinus but having a more resisting wall, is very much less compressed, little enough to insure a sufficient circulation in the terminal branches and the ophthalmic artery. The nerves situated in the outer wall of the cavernous sinus, far from the infiltrated bone, are compressed only in a slight measure and are probably more especially affected at the border of the sphenoidal fissure as we have explained above.

Let us now suppose, that the subperiosteal gumma grows from the left side to the upper and then to the right side of the sphenoidal bone, as an erysipelas will grow over the nose to the other side of the face. When the infiltration on the right side reaches the inferior root of the small wing and the upper border of the right sphenoidal fissure, the right frontal nerve is affected like the one on the left, and this gives rise to the prodromal pains.

Then the gumma grows thicker on the right side of the bone and with the increasing infiltration comes the syndrom of compression, which had previously been produced on the left side.

In default of any other merits, I think the explanation just given has at least that of perfect probability. Besides explaining all the symptoms present, one may, with a little stretching, by its aid even understand why the supposed lesion has not produced any cephalo-rhachitic lymphocytosis. The lesion described is not in reality under the dura mater near the great subarachnoidal cavity. It is entirely enclosed under the periosteum of the sella turcica divided in reality from the dura mater by the

pituitary gland in the middle portion and by the cavernous sinuses on the sides. Moreover, the absence of a lymphocytosis is not a sign so absolutely necessary in affections of this kind that it would be indispensable to search for a special explanation.

I look even less for one of the absence of the Wassermann reaction at the most critical stage of this observation. The syphilitic nature of the lesions is definitively demonstrated by all the clinical symptoms and the therapeutic reaction. That the Wassermann was negative is not exceptional.

Many authors have observed, and I have seen a number of cases, in which eye affections manifestly syphilitic and yielding to the treatment, showed a negative Wassermann. Suffice it to say that such a reaction of incontestable interest as regards the verification of certain biochemical hypotheses and of frequent clinical interest, becomes a veritable danger the moment it is given preference against the purely clinical consideration. These latter are the truest and most trustworthy when it comes to the diagnosis and treatment.

ANÆSTHETICS IN EYE WORK.

M. H. Whiting (*British Med. Jour.*, November 21, 1914) takes issue with Mr. Harrison Butler on the choice of an anæsthetic in eye work. This refers to general anæsthetics. Whiting contends that chloroform should not be entirely abandoned and characterizes Mr. Butler's view as extreme, not to say immoderate. Whiting gives the death rate of C.E. mixture as 1 in 7,000, while for pure ether it is 1 in 10,000. He thinks the disadvantages and embarrassments of ether outweigh the extra safety afforded by it. Venous congestion, labored respiration and consequent movement, the collection of mucus in the air passages and the obstruction caused by the ether apparatus are considered hindrances to success or even safety. While using the cautery there is with either a very real danger of explosion.

It is surprising how tenaciously most English surgeons adhere to the use of chloroform when it has been so definitely settled that it is unsafe as compared to ether. With the exception of the danger of explosion when using a cautery, the objections raised by Whiting are without weight. All can be and are obviated in the hands of a skilled anæsthetist. Most of us in America feel much safer with or under ether.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE.

Section of Ophthalmology.

A meeting of the Section was held on Wednesday, December 2nd, 1914, Mr. Priestley Smith, F.R.C.S., President, in the Chair.

Miss Rosa Ford showed a case in which an eyelash pierced the lid border backwards.

Sir Anderson Critchett showed a patient with small optical iridectomies in a case of lamellar cataract. He described the operation, which was initiated by his father fifty years ago, and narrated cases so treated in which the result was very permanent. Mr. W. H. Jessop spoke favorably of the procedure, which he had himself carried out with great success, in adults as well as in children. In one case, operated upon 22 years ago, the result was as good to-day as at the time. Dr. Angus MacGillivray (Dundee) said he had done the operation described several times. The results by removal of the lens were not as satisfactory in lamellar as in other forms of cataract.

Mr. Leslie Paton showed a case which he regarded as Mikulicz's disease, and gave his reasons for the view. Col. R. H. Elliot referred to a case of the disease which he published in *The Ophthalmoscope;* that of a Hindu woman, aet. 49, in whom the lacrimal glands on both sides bulged like short horns, and the accessory portions of these glands projected into the conjunctival sac. The parotid, sublingual and submaxillary glands showed fulness. Removal of the lacrimal not only improved the appearance, but was followed by subsidence of the other glands. The tissues removed presented a close resemblance to the appearance of round-celled sarcomata.

Mr. Robinson exhibited a case of irido-cyclitis.

Mr. Eason showed a case of bilateral temporal hemianopsia, to illustrate the importance of taking the fields of vision in every case of optic atrophy. The patient, though he had seen many ophthalmic surgeons, became so blind that he had to be led about. His fields had not then been tested. He could make out moving objects and lights on the nasal side only. The onset of blindness in six months was unlike the history of the optic

atrophy of tabes, and Mr. Eason thought he might have pituitary tumor. Within a month of taking thyroid he got remarkable improvement of vision. He still took the extract, for if he went long without it, he noticed a relapse. The sella turcica was somewhat enlarged.

Mr. Holmes Spicer showed a case with angioid streaks in the retina.

THE LATE CAPTAIN ANGUS MACNAB.

The President made sympathetic reference to the death, on the battlefield, of Mr. Angus Macnab, an active member of the Section, and proposed a resolution of sympathy with his family, which was passed.

The Section then proceeded to the discussion of the subject:

The Necessity for an Exact Definition of Blindness.

Mr. Harold B. Grimsdale, in opening the debate, stated that the importance of defining, if possible, the condition of blindness had long exercised the minds of those concerned in the teaching and maintenance of the blind, and the recent awakening of public interest in the question made it all the more urgent to clear away doubt. On the recently appointed Committee on the subject, he was the sole representative of ophthalmic surgery; he had therefore invited this Section of the Royal Society of Medicine to try and arrive at something like unanimity on the question. Many members of the profession whom he had asked, found it impossible to define the status of a blind child otherwise than was done in the Act of 1893, namely that for educational purposes a child shall be considered blind who is too blind to read the ordinary school books. Yet all children who did not come into this definition were not fit for the ordinary school; for instance subjects of high myopia. It was desirable to have some rule for evaluation, as a guide, in each case. Many factors must be taken into account; and these concerned both the state of the patient and his employment. Both central acuity and the state of the peripheral vision must be considered, as well as the relative value of the two eyes, and the presence or absence of binocular vision. For certain employments a greater acuity was needed than for others. Those having no perception of light were but a small proportion of those ranked among the blind, while among children the proportion was still smaller. Among adults the blindness from optic nerve atrophy and glaucoma led to a preponderance over children. In a blind school of 68 children, 8 had no perception of light. In Boston, Mass., of 2,021 eye patients, 6 per cent. were

totally blind, 7.7 per cent. "practically blind," with a vision less than 6/60 of normal. These figures were not a guide, because totally blind persons would not seek relief. The blind persons in the United Kingdom number about 27,000, according to the census, but this could not be accurate. The ratio of the totally blind to the economically blind was about 1 to 9. The causes of economic blindness in children differed considerably from those in the adult. In the former, the chief trouble was loss of central acuity from corneal conditions; while in adults disease of the optic nerve, with contraction of the visual field operated chiefly. There was evident a tendency to make the standard of vision too high, and thus throw a large number of children into the "blind" class. One reason was that a child with bad sight demanded more individual attention from his teachers than the others, and so constituted a drag on the class as a whole. This was a stimulus to put such child into a special school. This might ensure his education being better looked after for the time, but once labelled "blind" he was liable to be drafted into a blind workshop. The co-education of the blind and the seeing was one of the most interesting experiments which had been conducted; the blind child was first started in a special school until he had mastered the elements of Braille writing and reading; then he took his place among sighted children in the universal school, and often competed successfully with normal children. The capacity to read separate letters was a very different matter from being able to read words; from experiments he found that the "near" acuity as measured by reading words was often more than twice the distant acuity measured on single letters. Often so-called blind children tried to read Braille by sight in preference to by touch. He contended that between the "blind" school and the normal school there should be a third school for children who had such visual defect that they could not be taught by the aid of the blackboard. His suggestion was that a distant acuity of 6/60 should be taken as the highest limit of vision for a blind school child. Those whose vision was better than 6/24, unless otherwise recommended by a medical man, he would send to an ordinary school. All special schools should be inspected at least once a year, and the vision of each child tested and recorded. Among the blind there would always be two classes: those who could not see at all or scarcely so, and those who could distinguish large objects, and so could guide themselves by their eyes in unfamiliar surroundings. Given a good field, an acuity of well below 3/60 enabled a man to move freely in the outside world; hence he re-

garded 6/60 as too high a standard below which a man should be regarded as practically blind. Mr. Grimsdale then dealt with the question in relation to various trades, and in conclusion suggested the appointment of a sub-committee to deal with the question in all its bearings. It was undesirable that a Bill on the subject should pass through Parliament without any reference to the opinion of that Section of the Royal Society of Medicine, for in that case most difficult questions would be left to the decision of absolutely unqualified amateurs.

Mr. Rockcliffe said that for many years he had advocated some definition of blindness The Local Government Board defined blindness as "Too blind, in the opinion of the Local Government Board, to perform work for which eyesight is ordinarily required." Others expressed it as "Blind for the practical purposes of life." During thirty years he had examined and admitted into a blind school large numbers, and his decisions had not been questioned. He divided cases into (*a*) blind; (*b*) partially blind. The latter were those who were able to differentiate fingers at a greater distance than three feet. There should be a clear distinction drawn between capacity for ordinary school education, and for technical education. A good broad distinction was: those who could count fingers at three feet, and those who could not. There should be a clear decision as to who should be participants in pensions for the blind.

Dr. Angus MacGillivray (Dundee) said that for industrial purposes so-called blind people could be divided into three classes: (1) totally blind, those who had no perception of light; (2) practically blind, those possessing perception of light but who were unable to take part in industrial occupations owing to marked impairment of vision; (3) the partially blind, whose defect prevented them obtaining employment in ordinary lighted workshops, their vision yet being such as to disqualify them from entrance to a blind institution. Thirty per cent. of the inmates of blind institutions belonged to the category partially blind. He discussed the case of children, and the general question in relation to occupations.

Mr. N. Bishop Harman contended that there was only one exact definition of blindness, the dictionary one—"want of sight." But the term was used to include many varieties of partial blindness, and for those that definition was sought. Vision was a complex act; acuity, field, mobility, mentality, and effects of difference of lighting, habit and custom, all took a share in the sensation. It was not possible by any sufficiently simple definition to

gather up possible varieties, any one of which might constitute partial blindness of serious order. Any definition must be related to the facts of life, must have reference to the person's capacity for work. If it could be certified that he was incapacitated from engaging in profitable labor by reason of his defect, his was a state of blindness. Any attempt to pass a definition of blindness drawn in professional terms, to operate through the legislature, was, he contended, doomed to failure, and was liable to be altered out of recognition. The definition in the Elementary Education Act, "inability to read the ordinary school books used by children," was worthy of the judgment of Solomon, for it defined blindness in terms of life. He pointed out the parallelism of the case of mental defectives, in which also reference was to life. He advocated a certification of blindness by two independent and duly approved medical men, who should be required to state their opinion, and the facts upon which that opinion was based; such opinion being subject to the scrutiny of the medical officer of the proper authority.

Mr. Richardson Cross (Bristol) thought the legislature was rightly attacking this question. If a child's sight was such that it could not attend the ordinary school, some other arrangement for its education must be made. There were blind schools for those nearly blind, and intermediary schools for myopes. Anything brought forward to deal with the infirmity in adults would not influence the good work being done for the children. Ophthalmic surgeons should agree among themselves as to a proper definition of a blind person. He thought it would be unsound to take the view that the layman was unable to judge on this matter. He thought the Registrar would accept two classes. One would embrace those who had no more than perception of light; the other either Snellen's types, or finger-counting, the latter for preference. Anyone who could not count fingers at a greater distance than a yard should be regarded as practically blind. In order to be practical, he thought that at first there should be some sacrifice of scientific precision; this could perhaps be arrived at later.

Mr. W. T. Holmes Spicer contended that the persons to decide this question should be expert ophthalmologists, not lay members of a County Council. Any rules arrived at should be for the guidance of expert examiners.

The President pointed out how well qualified this Section was for giving expert advice on such a matter, which was of the first importance.

ABSTRACTS FROM MEDICAL LITERATURE.

By W. F. Hardy, M.D.,
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INFLAMMATION OF THE UVEAL TRACT SECONDARY TO INFECTION OF MUCOUS MEMBRANES.

Chas. Goulden (*Royal London Ophthalmic Hospital Reports,* Vol. XIX, part III, November, 1914) in a long paper replete with case reports attempts to collect some of the information available concerning inflammation of the uveal tract in its various parts which appears in some way connected with infection of the mucous membranes. The material for the paper was collected from 6,835 patients who came for treatment of various eye affections. The incidence of the various forms of uveitis is set forth in the following table.

Number of patients, 6,835.

Disease: Iritis, 37; caused by gonorrhœa, 16; syphilis, 19; tuberculosis, 2.

Disease: Iridocyclitis, 142; caused by septic teeth, 64; congenital syphilis, 52; sympathetic, 3; gastro-entritis, 3; mucous colitis, 2; tonsillitis, 2; atrophic rhinitis, 2; gastric ulcer, 1; influenza, 1; endometritis, 1; bronchitis, 1; no cause found, 10.

Disease: Choroiditis—

(a) Disseminated, 9; caused by acquired syphilis, 3; congenital syphilis, 5; septic teeth, 1.

(b) Single patch of choroiditis with K.P., 4; caused by septic teeth, 2; purulent rhinitis, 1; appendicitis, 1.

(c) Massive choroiditis; caused by purulent rhinitis, 1.

A diseased mucous membrane was found in 78 cases of the 142 cases of iridocyclitis. That the eye is especially susceptible to metastatic panophthalmitis in puerperal sepsis is stated by Goulden to be a well known fact.

The various mucous membranes are taken up in order and instances related showing uveal inflammations to be the result of diseased conditions of these mucous membranes. Oral sepsis and gonorrhœa come in for the greater amount of attention and discussion.

Four varieties of gonorrhœal iritis are described: 1. Those with slight iritis. 2. Plastic iridocyclitis. 3. Exudative iridocyclitis, and, 4. hæmorrhagic iritis. Plastic iridocyclitis is stated to be

the most common type of gonorrhœal iritis; it is the form commonly seen in relapsing iritis and in its early stages often causes great difficulty in treatment. This type is more severe than the slight iritis and is more commonly observed. The injection of the conjunctiva, œdema of the lids and discoloration of the iris are marked and there is the tendency to considerable exudation into the pupillary area and the formation of broad posterior synechiæ. These cases, if neglected, lead to complete synechia of the pupillary margin, grayish membrane in the pupillary area and in some cases to grave nutritional changes in the eye, resulting in lowered tension.

Goulden arrives at the following conclusions:

1. That it is most likely that many cases of uveitis, other than those due to syphilis and tuberculosis, are due to infection from a diseased mucous membrane.

2. That the most common cause of uveitis is oral sepsis.

3. That in the case of gonorrhœa and typhoid fever the proof is complete, showing bacterial infection of the eye during the course of these diseases.

4. That the finding of cocci, behaving as regards staining agents like pneumococci, in a patch of choroiditis makes it almost certain that pneumonia may be a cause of uveitis.

5. That in any case of uveitis, of which the cause is not obvious, every mucous membrane should be examined by inspection, and if necessary, bacteriologically, and that if be done the majority of such cases of uveitis will furnish at least one mucous membrane the seat of infection.

6. That cases of gonorrhœa are very difficult to cure when once the deeper parts of the urethra have become infected; that such cases, if not completely cured may become a source of very serious danger to the patient, not only at a short period after infection by the gonococcus, but even after many years of apparent immunity.

7. That the type of uveitis which consists of a solitary patch of exudation into the choroid, with vitreous opacities and K.P., is always secondary to a source of septic infection in some other part of the body, and that source is usually a mucous membrane.

A bibliography of three pages accompanies the article, which is well worth being read in the original. The many phases of the subject discussed, the length of the paper and the numerous case histories, make it difficult to abstract.

THE WEST INTRA-NASAL PARTIAL RESECTION OF THE TEAR SAC FOR DACRYOCYSTITIS, DACRYOSTENOSIS, PHLEGMON OR EPIPHORA.

J. S. Clark (*Illinois Med. Jour.*, January, 1915) takes up the subject of diseases of the tear sac with special reference to their cure or relief by means of the West operation. The technique of the operation is divided into four steps:

1. Partial resection of septum if the septum obstructs the view. 2. Removal of the anterior end of the middle turbinate if it is large and covers the fossa. 3. The making of the muco-periosteal flap. 4. The resection of the processus pyriformis. An operation is not considered successful unless the "color test" can be secured. This consists of the following procedure: A 2 per cent. solution of fluorescin is dropped in the conjunctival sac, a piece of cotton having been previously placed on the middle turbinate body, and in a few minutes one finds a fluorescin stain on the cotton upon its withdrawal. The technique and instrumentation is gone into which is of more interest naturally to the rhinologist than the ophthalmologist. However, the reasons for the operation and the results aimed at are of intense interest to the oculist in these most troublesome of cases. The conclusions arrived at as to the advantages of the procedure are: 1. A functional tear apparatus is the foremost attainment. 2. There is no possibility of an external scar nor the dread of one. 3. There is no epiphora following the operation. 4. There is no possibility of having to do a secondary extirpation of the lacrimal gland on account of troublesome epiphora. 5. Epiphora due to stenosis is permanently cured. 6. The operation may be performed while a phlegmon is present and with utter unconcern. 7. In view of the many advantages cited above, a prospective patient is very much more apt to accept the intra-nasal partial resection than they are the external extirpation of the sac.

THE QUESTION OF CONTAGIOUS EYE DISEASES IN THE PUBLIC SCHOOLS OF LOUISVILLE.

J. M. Ray (*Kentucky Med. Jour.*, January 1, 1915) finds that confusion exists often in differentiating follicular conjunctivitis and trachoma due in great measure to faulty description and want of proper classification found in modern text books. Ray feels that many cases classed as trachoma are in reality but follicular conjunctivitis—a benign condition. He describes the two

conditions and takes up their differential diagnosis. He concludes by submitting the following propositions that to him seem tenable:

1. Trachoma is a specific infectious inflammation of the conjunctiva.

2. It appears at all ages from the cradle to the grave.

3. No country is exempt, yet certain individuals and certain races present a certain immunity.

4. It is contagious by direct transmission only of the secretion from an infected eye to a healthy eye of another.

5. The activity of the contagion depends largely upon the presence of a secretion.

6. Trachoma, if untreated, leads in time to serious secondary changes, so-called sequellæ. These are characteristic and pathognomonic.

7. No known treatment and no operative interference is sure to promptly cure the case at any stage of its career, and it is subject to relapses.

8. Trachoma being a specific infection due to a micro-organism cannot arise de novo and cannot result from the gradual evolution of any other conjunctival condition.

9. Folliculosis or follicular conjunctivitis is a condition found in children. It is often associated with the so-called lymphatic diathesis, tonsil and adenoids, and disappears in time without treatment and with a normal conjunctiva remaining. It cannot be the first stage of a trachoma development, since it has been known to disappear without treatment, and of all the different organisms that have been claimed as the specific agent in trachoma, no observer has found them in any number of cases known to be of the follicular type. Folliculosis develops in the eyes of children as the result of local irritation and bad hygienic surroundings, and can be produced in the eyes of susceptible adults by local applications, such as is seen after long use of atropine, eserine and other local agents. Ray states that if these conclusions are true there is no ground for the alarming statement as to the great amount of trachoma in the schools. There has been simply revealed many cases of a harmless condition of which the patient was unaware. He emphasizes the statement that it is unscientific and harmful to the best interests of both the profession and the laity to create a fear as to the existence of a disease the dangers from which are largely imaginary.

In view of the fact of the known difficulties arising at times

in differential diagnosis and of the terrible ravages of true trachoma, most ophthalmologists will prefer to err on the side of over-caution and can hardly be expected to concur in the latter conclusion of Dr. Ray's paper.

CONSANGUINEOUS MARRIAGE.

In the Berlin Letter (*Jour. Am. Med. Assn.*, January 30, 1915) the following extract is taken from the address of Dr. Crzellitzer, who said among other things concerning consanguineous marriage: "The condition is quite different with the investigation of diseases which occur in the progeny of such marriages, so far as the disease was latent in the parents but was awakened by the consanguineous marriage. Such conditions are recognizable by the fact that these diseases appear in the progeny of the consanguineous marriage to a greater proportionate extent than in the population at large in the community to which the consanguineous groups belong. In this way the importance of consanguinity for the occurrence of idiocy, congenital deaf-muteism and certain eye diseases, particularly pigmentary degeneration of the cornea (?), has been established. Crzellitzer has kept for many years the family records of a number of families in which occurred a number of inherited or possibly inherited eye diseases. In about 850 of these, reliable data with reference to the blood relationship or the reverse of the parents were obtained, so that they are available for the purpose of the investigation. In two cases it seems that a connection between the disease and the consanguinity must exist, namely, extreme myopia and strabismus. The latter result is new and is adapted to throw light on the general heredity of strabismus. Still the problem of the consanguinity is only a special phase of the general problem of heredity, and is probably an instance of the superior opportunity for the persons with mixed heredity to find in their own families partners with similar mixed heredity over that in the rest of the homozygotic population, that is among persons of pure heredity. In an organism of mixed heredity, a disposition which we call recessive may remain latent for decades but come to light on pairing with another organism of the same tendency. Thus the Mendelian laws give the key to some of the obscure problems of the ages."